Cinder Concrete

Advantages of this material—Objections met—Results of fire tests

With every succeeding year the utilization of reinforced concrete for building purposes of every sort is becoming more and more general. Both from experience with actual constructions and through the use of tests, engineers are able to foretell how the various forms of the material will act under different conditions. Moreover, in the field of fireproof construction of buildings, concrete stands preeminent, with regard to durability, economy, and fire-resisting qualities. Many interesting facts have been brought to light with regard to the manner in which concrete withstands fire, and the investigations along these lines have been thorough and far-reaching.

The use of cinder-concrete in fire-proof floor construction has been growing in popularity from day to day. Objections to the use of this material have been advanced, in view of the fact that in some cases where it has been used, piping for the sprinkler systems or for other purposes has been corroded to such an extent as to be rendered useless. For this corrosion the cinder-concrete has been blamed. However, it has been demonstrated that, if the cinders are not new, are free from sulphides, and that if the mixture consists of one part of cement to ten parts of cinders, with enough sand to make a dense mixture, there is little or no danger of the corrosion of water piping.

A recent fire, water and load test, carried on upon cinder, terra-cotta and gypsum floor arches, showed that the first-mentioned material was the best of the three. A fire was kept burning continuously below the floor for a period of four hours, and during that time the floor was subjected to an average temperature of 1700° F. At the end of the four hours a fire stream was turned on the roof while it was still red hot. The floor load during the test was 150 pounds per sq. ft.

The cinder-concrete suffered very little damage, and the test served to furnish an additional proof that this material is an excellent fire-resisting medium.—W.L.C.

OYSTER DREDGE FOR PRINCE EDWARD ISLAND.

An American oyster dredge has been purchased and transferred to Canadian registry by one of the largest companies engaged in developing the oyster areas of Prince Edward Island. The dredge is equipped with a 36-horsepower gasoline engine, is 43 feet long, 15 feet wide, and has a draft of 4 feet 8 inches. The two grapnels have a capacity of five bushels each, and the total capacity of the vessel is 700 bushels. (U.S. Consular Report.)

Modern Road Builders Must Confine Wear to Upper Surface

Hard Stones, not well Bound, Grind each other and Produce Mud and Dust.—Advantages of Bituminous Binders

Many people regard the question of road surfaces very superficially and select for their macadamized road material the rocks that offer the greatest resistance to attrition. This, however, is a wrong view. The main source of the mud and dust arises from the inter-attrition of the stones composing the macadam and which converts them into a rounded form. All improved pavements have for their object the reduction of this interstitial wear and the confining of the wear to the upper surfaces.

Taking these improved pavements in order, granite blocks have the great disadvantage of ear-splitting noise and are detrimental to vehicles.

Wood blocks are elastic, but their extension is limited by considerations of cost. The early asphalt pavements were very expensive, as they were constructed of ground up natural asphalt rock. Surface tarring was introduced about eight years ago and has been widely adopted. While tar is an excellent binding material for the particles of the surface of a macadam road, it is only elastic to a limited extent and its variation in consistency due to temperature changes makes its use a difficult matter.

Fortunately, discovery has kept pace with the demand. The residual product of the asphaltic oils in the central portion of the American continent is available in immense quantities. In distillation, after the gasolene and oils have passed over from the still, the process can be stopped at a point at which the residual substance is practically pure bitumen. This substance is most distinctly elastic and does not lose this property if mixed with an equal mass of finely ground lime, etc.

This bituminous "binder" can be mixed with the angular sand found on sea shores, river estuaries, sand pits, etc., or with crushed flint, gravel or shingle. Thus mixed, if built upon a foundation sufficiently strong to carry the traffic, it forms a road surface that is durable, resilient, non-slippery and waterproof, and it can be produced at reasonable cost.

So long as heavy traffic was confined to the principal streets of large towns, the heavy cost of asphalt or wood-block pavement was cheerfully borne, but now in this automobile era the traffic has to spread itself over the roads that radiate from the cities, and the consideration of maintaining these roads in a satisfactory condition at a reasonable cost has become the problem of the moment. It is also of peculiar importance in Canada at the present time as the Federal Government has definitely adopted the policy of improving the main arteries of communication throughout the various provinces.

The Windbreak-Planters' Ten Commandments

The Forest Service of the United States has compiled a decalogue for the use of farmers in the prairie regions, to direct them in the planting and management of windbreaks.

I. Place the wind-break at right angles to the direction of injurious prevailing winds.

II. Devote from one-eighth to one-fifth of the farm to timber. Its protective value more than pays for the ground it occupies, to say nothing of the timber yield.

III. Plant only species suitable to wind-break use, to the region and to the locality.

IV. Plant rapid growers for quick results; but underplant with slower growing species, which are usually longer lived and more valuable.

V. Supplement a deciduous wind-break with evergreens to afford protection in winter.

VI. Separate trees by the spacing proper to the species used. The trees should be close enough to produce a dense wind-break and to yield good poles, but should not be so crowded as to produce spindling growth.

VII. Make the wind-break thick from the bottom up, especially on the side toward the wind. This may be done by using species which branch near the ground, by planting outside rows of low-growing trees, by encouraging natural reproduction, and by under-planting.

VIII. Cultivate the plantation thoroughly while it is young.

IX. Do not allow excessive grazing where reproduction is desired.

X. Do not thin your woodlot too heavily or take out the best trees for minor uses. Remember that a timber tract should be improved by use and that each clearing should leave it in better condition than before.

Inventory of Forest Wealth

Commission of Conservation Co-operates with Department of Lands of British Columbia and with Dominion Forestry Branch in Big Stocktaking Task

The Commission of Conservation and the Department of Lands of British Columbia have entered into a co-operative arrangement for a study of the forest conditions and forest resources of British Columbia. Dr. H. N. Whitford has been employed by the Commission of Conservation to begin the work of collecting information along the above lines from all available sources. The large amount of material which has been collected by the British Columbia Forestry Branch will be supplemented by information to be secured from all other possible sources, including the Forestry Branch of the Canadian Pacific Railway, and statements by timber cruisers, limit holders, surveyors and others. The Canadian Pacific Railway Forestry Branch has collected much valuable information with regard to the forest resources of the southern portion of British Columbia, and much of this information is to be made available through a co-operative arangement between the Commision of Conservation and the authorities of the Canadian Pacific Railway.

In the Prince Albert District of Northern Saskatchewan, a similar study of forest conditions and forest resources is being carried on for the Commision of Conservation by Mr. J. C. Blumer. This part of the work is being conducted in co-operation with the Dominion Forestry Branch.

This work is part of a general study, which has been undertaken by the Commission of Conservation, having for its object the approximate determination of the amount of timber in each of the various provinces of Canada. — C. L.

Canadian Rail Production

Years.	Gross tons.
1895	600
1896	600
1897	500
1898	600
1899	835
1900	700
1901	891
1902	33,950
1903	1,243
1904	36,216
1905	178,885
1906	312,877
1907	311,461
1908	268,092
1909	344,830
1910	366,465
1911	360,547
1912	423,885